1. A PEM fuel cell comprising:

a plurality of fuel cells, each fuel cell comprising:

first and second ribbed surfaces;

an electrolyte disposed between the first and second ribbed surfaces;

the first ribbed surface comprising an anode;

the second ribbed surface comprising a cathode; and

an enclosing layer affixed to a first edge of a plurality of first and second ribbed surfaces, thereby creating a chamber between the surfaces of alternating anodes and cathodes; and

a connecting layer affixed to a second edge of the first and second ribbed surfaces, providing electrical connectivity between select anodes and cathodes.

2. The PEM fuel cell of claim **1** wherein the anode comprises a porous thin film catalyst sputtered onto the first ribbed surface and the cathode comprises a porous thin film catalyst sputtered onto the second ribbed surface.

3. The PEM fuel cell of claim **2**, further comprising the porous thin film catalyst deposited on a porous material.

4. The PEM fuel cell of claim **1**, wherein the plurality of fuel cells are located in a layer.

5. The PEM fuel cell of claim **4**, wherein the plurality of fuel cells are substantially trapezoidally shaped.

6. The PEM fuel cell of claim **4**, wherein the electrolyte comprises a proton conducting material.

7. The PEM fuel cell of claim **6**, wherein the proton conducting material is selected from the group consisting of plastic and teflon.

8. The PEM fuel cell of claim **4**, wherein the connecting layer comprises a substrate beneath a patterned metal layer containing pathways through which electricity flows, the metal layer being covered with a dielectric material.

9. The PEM fuel cell of claim **8**, wherein the substrate is selected from the group consisting of silicon wafer, ceramic, and plastic.

10. The PEM fuel cell of claim **8**, wherein the dielectric is polyimide.

11. The PEM fuel cell of claim **4**, wherein a first chamber contains a fuel selected from the group consisting of hydrogen and methanol-water and a second chamber contains oxygen.

12. The PEM fuel cell of claim **1**, wherein the plurality of fuel cells are located in a plurality of stacked layers.

13. The PEM fuel cell of claim **12**, further comprising a side layer for providing electrical connectivity between the stacked layers.

14. The PEM fuel cell of claim **12**, wherein the plurality of fuel cells are substantially trapezoidally shaped.

15. The PEM fuel cell of claim **12**, wherein the electrolyte comprises a proton conducting material.

16. The PEM fuel cell of claim **15**, wherein the proton conducting material is selected from the group consisting of plastic and teflon.

17. The PEM fuel cell of claim **12**, wherein the connecting layer comprises a substrate beneath a patterned metal layer containing pathways through which electricity flows, the metal layer being covered with a dielectric material.

18. The PEM fuel cell of claim **17**, wherein the substrate is selected from the group consisting of silicon wafer, ceramic, and plastic.

19. The PEM fuel cell of claim **17**, wherein the dielectric is polyimide.

20. The PEM fuel cell of claim **12**, wherein the side layer comprises a substrate beneath a patterned metal layer containing pathways through which electricity flows, the metal layer being covered with a dielectric material.

21. The PEM fuel cell of claim **20**, wherein the substrate is selected from the group consisting of silicon wafer, ceramic, and plastic.

22. The PEM fuel cell of claim **20**, wherein the dielectric is polyimide.

23. The PEM fuel cell of claim **12**, wherein a first chamber contains a fuel selected from the group consisting of hydrogen and methanol-water and a second chamber contains oxygen.

24. An electronic device using the fuel cell of claim **4** as a power source.

25. A method of preparing a PEM fuel cell assembly, comprising the steps of:

providing a plurality of fuel cells, each fuel cell comprising a first and second ribbed surface;

disposing an electrolyte between the first and second ribbed surfaces;

sputtering a thin film catalyst onto the first ribbed surface to create an electrode selected from the group consisting of an anode and a cathode;

sputtering a thin film catalyst onto the second ribbed surface to create an electrode selected from the group consisting of an anode and a cathode;

affixing a top layer to a top edge of the first and second ribbed surfaces, thereby defining a chamber between consecutive ribbed surfaces; and,

providing a patterned bottom layer to a bottom edge of the ribbed surface thereby providing electrical connectivity between select anodes and cathodes.

26. The method of claim **25**, further comprising the step of layering the plurality of fuel cells.

27. The method of claim **26**, further comprising the step of stacking the plurality of fuel cells.

28. A PEM fuel cell comprising a plurality of fuel cells, each fuel cell comprising means for providing:

first and second ribbed surfaces;

an electrolyte disposed between the first and second ribbed surfaces;

the first ribbed surface comprising an anode;

the second ribbed surface comprising a cathode; and

enclosing layer means affixed to a first edge of a plurality of first and second ribbed surfaces, thereby creating means for a

chamber between the surfaces of alternating anodes and cathodes; and,

connecting layer means affixed to a second edge of the first and second ribbed surfaces, thereby providing means for electrical connectivity between select anodes and cathodes.

29. The PEM fuel cell of claim **28** wherein a first porous thin film catalyst means is sputtered onto the first ribbed surface and a second porous thin film catalyst means is sputtered onto the second ribbed surface.

30. The PEM fuel cell of claim **28**, wherein the plurality of fuel cells are located in a layer.

31. The PEM fuel cell of claim **30**, wherein the plurality of fuel cells are substantially trapezoidally shaped.

32. The PEM fuel cell of claim **30**, wherein the electrolyte comprises a proton conducting material.

33. The PEM fuel cell of claim **28**, wherein the plurality of fuel cells are located in a plurality of stacked layers.